IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) In a communications system including a first modem operatively connected to a second modem via a communications network comprising digital trunks with digital impairments of repetitive nature with a repetition frame consisting of one or more time slots and analog loops, the first modem performing a method of compensating for inter-modulation distortion (IMD) present in signals received from said second modem, said method for compensating comprising:

preprocessing to minimize effects of impairments other than IMD, to derive best estimates x' of [[the]] received values that would correspond to a set of transmit values y;

deriving an IMD based constant I from x'; and

removing an IMD component from the received estimates x' to derive an IMD removed new estimate x'' in accordance with an equation:

$$x'' = x' - I\,(by^3)$$

where b is a system constant.

2. (Currently Amended) The method of claim 1 wherein said step of preprocessing comprises the steps of:

(a) minimizing correlative analog impairments effects on received values caused by [[the]] an analog section in the signal path,

(b) averaging samples of the received values of step (a) to minimize noise effects on the samples corresponding to a set of digital codes transmitted, for each time slot in the repetitive frame of digital trunk,

(c) detecting digital impairments of a repetitive nature and averaging similar time slot values in a repetitive frame, and

(d) averaging time slots in which the digital impairment is not present to generate the preprocessed values x'.

3. (Previously Presented) The method of claim 2, wherein in said step (c) the digital impairments correspond to Robbed. Bit Signaling in a digital trunk, said step (c) further comprising the steps of:

for each time slot in a repetitive frame, selecting a set N of averaged values of higher power samples and computing N-l distances between adjacent samples and measuring the number M of distances that are close to zero within the noise tolerance, and

marking time slots in which the number M is above a threshold (M_RBS) as the Robbed Bit Signaling slots.

4. (Currently Amended) The method of claim 1, wherein said step of deriving IMD based constant I from x' further comprises the steps of:

calculating distances between consecutive preprocessed values ~~receive levels~~,

normalizing all distances based on distances between lower power receive level values which are insensitive to the IMD level, and

performing linear regression on the normalized distance and obtaining the slope of the line that corresponds to the IMD constant I.

5. (Original) The method of claim 1, wherein said step of removing the IMD component from the received estimates x' to derive a IMD removed new estimate x'' comprises the steps of:

calculating a distortion amount I* (by^3) by multiplying the derived IMD constant I of claim 1, by a stored table based on the communication channel for each preprocessed received value x',

subtracting the calculated distortion calculated from x' and storing the IMD removed x'' for all transmitted values y.

6. (Original) The method of claim 1, wherein mu-law or A-law encoding is used, the preprocessed receive values x', the IMD removed receive values x'', and the transmit values y are indexed using Ucode in ascending magnitudes.

7. (Original) The method of claim 6, wherein the Ucode values span from Ucode 72 to Ucode 105.

8. (Original) The method of claim 3, wherein the repetitive frame of digital impairments is one of 6, 12, or 24 time slots.

9. (Previously Presented) The method of claim 3, wherein the Robbed Bit Signaling uses N=35 from Ucode 72 to Ucode 105 for processing and the M_RBS threshold for zero distances is set to be 10.

10. (Canceled)

11. (Original) The method of claim 1, further comprising the step of setting limits, in the first modem, on constellation levels which the second modem transmits to the first modem, the limits based upon the calculated IMD.